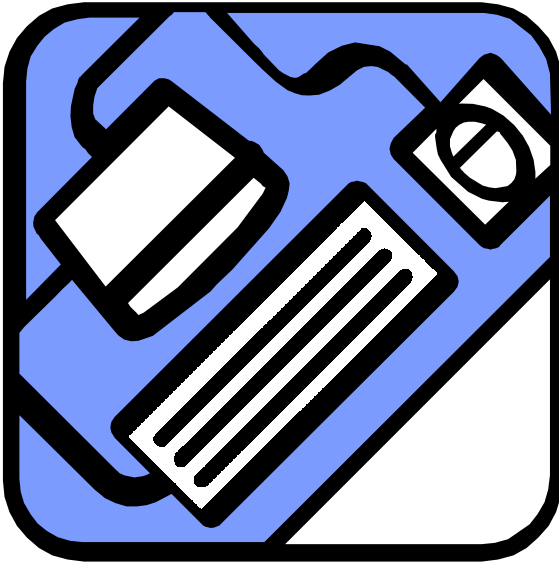

IBM OS/2 Warp 4 Foundation Level Training Manual

Educational Edition



C C T G L O B A L . C O M

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Courseware Release Version 5.0

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OS/2 Warp 4 - Background and Concepts

When you have completed this learning module you will have:

- Understood why OS/2 was developed and why DOS is no longer capable of making the most of modern PC designs
- Seen the advantages of a multitasking system
- Seen that as well as running OS/2 programs, OS/2 will also allow you to run DOS and MS Windows-based programs
- Seen that OS/2 makes better use of memory and disk filing systems compared to DOS and MS Windows
- Seen the basic hardware requirements of OS/2
- Seen how easy it is to install OS/2

What is OS/2?

OS/2 is a powerful operating system originally designed to replace DOS. It was introduced in 1987 along with a new type of PC, which used a new internal design called MicroChannel Architecture, found in the majority of IBM PS/2 computers.

The original PC operating system called DOS (short for Disk Operating System) was fine when it was introduced way back in 1981, but as PC hardware has advanced in both speed and power it has become increasingly dated. OS/2 is specifically designed to take advantage of modern PC hardware, especially modern CPUs (Central Processing Units), such as the Intel Pentium CPU. Unlike DOS, OS/2 allows you to multitask, i.e. to run more than one program at a time.

Advantages of OS/2 Compared to DOS

The most obvious advantage of OS/2 over DOS is that it allows you to multitask, i.e. to run more than one program at a time. DOS was limited to using only 640 KB of RAM (Random Access Memory) whereas OS/2, in effect, has no practical restrictions on the amount of memory you can install.

From a users point of view, OS/2 is much easier to both learn and use. In DOS you have to learn a complex set of instructions just to use the operating system, whereas OS/2 is much more intuitive because of its graphical nature. Under OS/2 most activities can be achieved through pointing and clicking using a mouse. The OS/2 interface (i.e. screen) is often described as a GUI (Graphical User Interface).

Multitasking

Multitasking is the ability to run more than one program at a time. Most PCs have only one CPU that does all the work within the PC, so that multitasking is, in fact, an illusion. It may appear that you are running three OS/2 programs simultaneously but what actually happens is that the first program runs for a very short period of time, stops, and allows the second program to run. This in turn stops to allow the third program to run, which then stops to let the first program restart, and so on. Because this happens so quickly you have the illusion that all three programs are running simultaneously. You don't have to worry about how the multitasking is controlled, as it is all handled automatically by co-operation between the PC's CPU and the OS/2 operating system.

Other systems such as Microsoft Windows and the newer Microsoft Windows 95 also allow multitasking, but are not as secure or powerful as the way multitasking is achieved under OS/2. Also, unlike Microsoft Windows 95 which has a mixture of 16 bit and 32 bit operating systems, OS/2 is fully 32 bit and is totally independent of DOS. Windows 95 still has elements of DOS within it making it inferior to OS/2.

OS/2 and Support for DOS and Windows

OS/2 is designed to run OS/2 programs. However, it will also run most (but not all!) DOS and Microsoft Windows 3.1 programs. These can be run at the same time as your OS/2 programs.

Experienced DOS users still like to use a command line even under OS/2, due to the fact it is often easier and quicker (provided you fully understand the command syntax. The command syntax is a complex line of instructions that you have to type in yourself. For instance, to format a diskette (i.e. floppy disk) from the command line, you would enter the command syntax:

FORMAT A:

You would then have to press the **Enter** (Return) key.

If you are familiar with using Microsoft Windows 3.1 you can simply click on an icon within OS/2 and the familiar Program Manager along with the Program Manager groups will be displayed within OS/2. However, you should note that there are two variants of OS/2 Warp - one that comes with a Windows 3.1 emulation and a cheaper version that does not contain this emulation.

OS/2 and Memory

When DOS was released way back in 1981, not many people actually used the maximum amount of memory it could recognize - 640 KB. These days even the cheapest IBM clone manufacturers will supply a computer with 4 MB of RAM (Random Access Memory). Using DOS on a 4 MB PC is largely a waste of time as DOS will only use the first 640 KB! The remainder of the 4 MB is not recognized! OS/2 on the other hand will happily recognize up to 4000 MB of RAM (if you could afford it!).

The use of memory is important for two reasons. If you are going to run more than one program at a time, then each program will require it's own memory space and thus the more programs you run the more memory you require. Also, application programs (such as word processors, spreadsheets and databases) have become more and more sophisticated and as such require ever larger amounts of memory in order to run.

The other big advantage of OS/2 over DOS is that it can use virtual memory. This means that part of your hard disk can pretend to act as RAM. In this way, even though you only have 16 MB of memory physically installed and RAM chips installed, your system can be tricked into thinking that you have much more! The down side is that use of virtual memory by OS/2 slows down performance. RAM chips act much faster than hard disks, due to the simple fact that hard disks contain moving parts, whereas memory chips are purely electronic.

OS/2 and Filing Systems

Before OS/2, most PCs used DOS and DOS used a filing system called the File Allocation Table (FAT). The FAT is used by DOS to locate the physical position of files on the hard disk or diskette.

The original versions of OS/2 all used the FAT. Later versions, including OS/2 Warp can use either the FAT or the High Performance Files System (HPFS). As the name implies, the HPFS gives a better level of performance when compared to using the FAT. However, as a large number of people still use the FAT, many OS/2-based PCs still use the FAT filing system.

The FAT system limits file names to a maximum of eight characters, whereas the HPFS allows file names of up to 255 characters and, unlike the FAT, allows you to insert spaces within the file name.

Hardware Requirements

OS/2 is a grown up operating system that demands a powerful PC to run it. The faster the CPU, the more memory and faster graphics hardware required to really get the best out of OS/2. DOS only required an ancient Intel CPU called an 8088. Even Microsoft Windows 3.1 would not run on this requiring a minimum of an Intel 80386 CPU.

For sensible use OS/2 Warp requires a fast Pentium processor, with at least 16 Mb of RAM. You will also require a large, fast hard disk!

Installation

Installing OS/2 within the corporate environment will normally be carried out by specialist support groups. However, providing you have reasonably standard hardware, just about anyone can install OS/2 onto a PC. The installation is menu driven and does not require detailed hardware or software technical knowledge. If you are technically minded however, there are numerous options within the installation routine to allow to you customize your installation. Otherwise simply choose the 'Easy Installation' option.

OS/2 is supplied in either diskette or CD-ROM format. Installing from disks is very slow! The CD-ROM installation simply asks you a few question, such as which country you are in, and then proceeds to completion.

Review Questions

- List a few reasons why OS/2 is better than DOS on a modern PC.
- How much memory could DOS use?
- What two disk filing systems can be used with OS/2?
- Can DOS and MS Windows 3.1 programs be used under OS/2?

Basic Concepts and Screen Components

When you have completed this learning module you will have:

- Understood the main concepts behind the use of the WorkPlace Shell, and the concept of a 'data centric' operating system
- Seen the types of objects within the WorkPlace Shell
- Seen the way the two mouse buttons are used within OS/2
- Understood the concept of 'drag and drop'
- Seen how to use the OS/2 LaunchPad
- Learnt how to identify the standard components of an OS/2 window
- Seen how to manipulate a window, including re-sizing and moving a window
- Seen how to invoke pop-up property menus
- Seen how to shutdown OS/2

What is the WorkPlace Shell?

The OS/2 Warp WorkPlace Shell is designed to represent the 'messy desktop' of a real desk. On a desk you may find reports, invoices etc., beside the desk you may well find a filing cabinet, and under the desk is generally a waste paper basket. All of these items are contained within the WorkPlace Shell. Items within the WorkPlace Shell are referred to as 'objects'. An object can be anything from a file containing a report to a disk drive within your computer.

Concentrating on Your Data!

In operating systems such as DOS, you have to understand all about disks and sub-directories. You have to understand the concept of a file, worry about where it was physically stored, and also be aware of the difference between data and program files.

In OS/2 you simply concentrate on your data. As to which program was used to create the data and where is it physically stored, who cares! OS/2 is referred to as a 'data-centric' operating system due to the fact that you manipulate data, not files or disks! This makes it much easier to use!

WorkPlace Shell - Types of Objects

The Desktop

The Desktop fills your screen and is actually a folder that contains items that you work with on a regular basis.

Data Objects

Data Objects contain your data. These objects are created using application programs, and may consist of documents, reports, spreadsheets, pictures etc. When using OS/2 you tend to concentrate on manipulating data objects.

Program Objects

Program Objects contain the programs that you will create your data with. These may be word-processors, spreadsheet programs, database programs, graphics programs etc. OS/2 itself contains numbering programs within the operating system, such as a clock and calendar program.

Device Objects

Device Objects represent the physical drives within your computer, such as the diskette drive and the hard disk. If you are connected to a network, then the hard disk on other computers that you have access to, will be accessible via a device icon. Other physical devices, such as printers and modems will also be represented as device objects.

Folder Objects

These objects are containers that allow you to store other folders, or any other type of object within them. They are similar to the physical folder that you will see in the office, that may contain a number of reports, or indeed contain other folders, allowing reports to be easily separated.

Template Objects

These are a special type of object used to create new objects. For instance, if you wish to create a new folder you would use a template to achieve this.

The Two Mouse Buttons - Select, then Manipulate!

When using OS/2 it is vital to remember that you have two mouse buttons on your mouse (actually some have three, but don't worry about the middle button if you have one!). Generally in OS/2 the left-hand mouse button is used for selecting, while the right-hand mouse button is used for manipulating. Always remember the basic rule in OS/2 - Select, then Manipulate. If you think about the OS/2 WorkPlace Shell from OS/2's point of view, then OS/2 needs to know what you are interested in manipulating.

You must always remember to select an object first (generally by clicking on it, using the left-hand mouse button), once selected the object can be manipulated. Often object manipulation takes the form of 'drag and drop' which is outlined in the next page.

What is single clicking used for?

Single clicking means moving the mouse pointer to the item you wish to select and clicking once, using the left-hand mouse button. Single clicking is normally used to select an item (object). This can be either text or a picture (graphics).

Note: In many Windows-based applications, such as Word for Windows, more advanced selection techniques are often available. Thus, in Microsoft Word for Windows version 6, if you double click within a word, this will automatically select the entire word. If you triple click (i.e. depress the left-hand mouse button three times in rapid succession, then an entire paragraph will be selected.

What is double clicking used for?

Double clicking means moving the mouse pointer to the item you wish to select and clicking twice in rapid succession, using the left-hand mouse button. Double clicking is normally used to run or activate the selected item.

Thus, as we shall see later, if you double click on a Program Icon within the Program Manager, then the program that the icon represents will run.

Drag and Drop - Copying vs. Moving

Once an object has been selected, it is often manipulated via a 'drag and drop' operation.

For instance, if you wished to move an object from one folder to another, you would perform the following series of actions.

To move objects

- First select the object to be copied by clicking once using the left-hand mouse button.
- Depress the right-hand mouse button (and keep it depressed).
- Move the mouse pointer to the folder that you wish to move the object to.
- Release the mouse button.

The object then disappears from the original folder and is displayed in the new folder.

To copy objects

If you want to perform a copy rather than a move operation, re-trace the steps outlined above, but keep the **Ctrl** key depressed during the entire operation.

Using Shadows

Unlike a copy a shadowed object maintains links to the original object. If either the original or shadow are altered, the change also takes place in the second object. It is common to shadow objects to the **StartUp** folder, rather than copying them.

To create a shadow

- Depress **Ctrl+Shift** when you drag the object from one place to another
OR use the **Create Shadow** command from pop-up menus.

The WarpCenter

The WarpCenter allows you to interact easily with the operating system. All of the functions that you can access through the WarpCenter can also be accessed from other parts of your OS/2 interface (i.e. through the System Setup object located on your Desktop).



Start an application or open an object.



Switch to another program.



Initiate system lockup.



Find Objects.



Initiate system shutdown.



Toggles between:

System activity monitor.

Disk space monitor.

Power source monitor.



Select object tray options.



Drives.



Printers.



Voice Manager.



Volume.



System Setup.



Command Prompts.



Assistance Centre.



Toggles between:

System Date

System Time.

System Timer.

The LaunchPad

The LaunchPad window can be displayed on the OS/2 Desktop and contains shortcuts to the most commonly used operations. For instance, you can close down OS/2 by clicking on the appropriate button within the LaunchPad window.

In previous version of OS/2 Warp the LaunchPad was the primary way of smart working within OS/2. It is no longer displayed by default, but can be displayed if necessary. The LaunchPad has now been superseded by the WarpCenter.

The Components of an OS/2 Window

Most windows that are displayed within OS/2 contain certain standard components. To control the shape and size of a window you must know how to manipulate each component making up the window. Also, if you are ringing up your technical support department it will make their life (and yours) much easier if, for instance, you can describe the Title Bar as the 'Title Bar' rather than the colored bit at the top, which at best is a bit vague!

The Title Bar and Moving Windows

The Title Bar displays the name of the program or active component of the program. The Title Bar is normally displayed in blue, but may be set to other colors if required.

As we will see, the Title Bar can be used to move a window around the screen.

Note: The Title Bar can also be used in an undocumented fashion, to Maximize a program running in a window, or to restore a maximized program to one which runs in a window. To do this simply move the mouse pointer to the Title Bar and double click.

To move a window

Any program displayed as a window within OS/2 can be moved around on the screen.

- Place the mouse pointer on the Title bar of the window you wish to move.
- Depress the left-hand mouse button.
- Move the mouse pointer and the window will be 'dragged' with it.
- When the window is in the required position, release the mouse button.

The Window Border - Re-sizing

To make a window narrower or wider

- Move the mouse pointer to either of the vertical borders, the mouse pointer will change to the shape of two horizontal arrows.
- Depress the left-hand mouse button and drag the window border left or right, by moving the mouse left or right.
- When the window is the size required, release the mouse button.

To make a window shorter or taller

- Move the mouse pointer to either of the horizontal borders, the mouse pointer will change to the shape of two vertical arrows.
- Depress the left-hand mouse button and drag the window border up or down, by moving the mouse up or down.
- When the window is the size required, release the mouse button.

To re-size a window in two directions at the same time

- Move the mouse pointer to any corner of the window to be re-sized, the mouse pointer will change to the shape of two arrows, inclined at 45 degrees.
- Depress the left-hand mouse button and drag the window border up or down, or left or right by moving the mouse up or down, or left and right.
- When the window is the size required, release the mouse button.

Maximize, Minimize, Close and Restore Buttons

Maximizing a window

An OS/2 program can either be run inside a window on your screen, with other programs running partially visible behind it, or it can be run so that it completely fills the screen. This is called running a maximized program window. When a program is maximized, you are unable to see other programs running in the background. To maximize a program window (assuming it is not already maximized), simply click on the **Maximize** button. The **Maximize** button is always in the top, right-hand corner of the screen.

TIP: Double clicking on the Title Bar of a program running as a window will cause it to run as a maximized program which fills the whole screen.

Restoring a window

- Once a program window has been maximized, you can restore it so that it runs in a window, by clicking on the **Restore** button.
- The **Restore** button is always in the top, right-hand corner of the screen, and is indicated by vertically pointing 'up and down' arrows.

Minimizing a window

When you Minimize a window it shrinks to an icon that can be displayed along the bottom of a screen.

NOTE: If you Minimize a program it will shrink to an icon, but may not be visible if you are running another program maximized (i.e. filling the whole screen). The Minimize button is the small down pointing arrow in the top, right-hand corner of every window.

Closing a window

The **Close** button will close the window, which means that it will be removed from your memory. If the window contains data that you have been working on you WILL be prompted to save any unsaved data.

Scroll Bars

To move up or down through a window containing vertical scroll bars

- Click in the vertical scroll bar
Or drag the scroll bar elevator up or down.

To move to the left or right in a window containing horizontal scroll bars

- Click in the horizontal scroll bar
Or drag the scroll bar elevator to the left or right.

The Menu Bar

Most (but not all) OS/2 programs have a Menu Bar. It is normally located just below the Title Bar. As we will see, the Menu Bar can be used to access menu-based commands within a program window.

Pop-up Property Menus

Pop-up menus allow you to customize the properties of an object. The pop-up menu also displays a list of shortcuts to manipulate the selected object.

Remember the Desktop itself is treated as an object, so that clicking with the right-hand mouse button on an 'empty' part of your Desktop screen will display the pop-up menu for the OS/2 Desktop.

To display the pop-up menu for any object

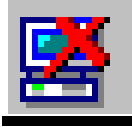
- Click once with the left-hand mouse button to select the object.
- Click once using the right-hand mouse button to display the object's pop-up menu.

Closing the WorkPlace Shell

You must NEVER just switch off a PC running OS/2 without first shutting down OS/2. If you do you may damage your OS/2 system, and you will almost certainly lose some of your data. Always use the **Shut down** option!

To shut down OS/2 using the WarpCenter

- Click on the Shut down icon



To shut down OS/2 using the right-hand mouse button

- Click on an empty part of your Desktop.
- Within the Desktop pop-up menu displayed, select the **Shut down** command.

To shut down OS/2 using the LaunchPad

- Simply click on the **Shut down** command located on the OS/2 LaunchPad.

OS/2 Keyboard Shortcuts

There are numerous keyboard shortcuts available within OS/2. While actions are normally performed using the mouse, if you know the keyboard shortcut to produce the desired effect, it is often much faster. For instance, Alt+F4 (i.e. pressing the Alt and F4 keys simultaneously) will close the active window. The active window is the one that is highlighted, i.e. the one you are using. From the OS/2 command line, entering the command **HELP** will display the following:

Alt+Esc to switch to the next session.

Ctrl+Esc to switch to the Window List.

Select Master Help Index for help about OS/2 and DOS procedures and tasks.

Type HELP message-number for message help.

Type HELP [BOOK] SUBJECT to receive on-line information.

Type HELP ON for help text.

Type HELP OFF for no help text.

Type EXIT to end this OS/2 session.

Review Questions

- What is a 'data-centric' operating system?
- List the main types of objects contained within the WorkPlace Shell.
- What are the two mouse buttons used for within OS/2?
- Name a few activities that can be started using the OS/2 LaunchPad?
- What happens if you double click on a window's Title Bar?
- How would you invoke a Property pop-up menu for an object?
- How should you shut down OS/2?

Controlling Multitasking Within OS/2

When you have completed this learning module you will have:

- Seen how to switch between programs
- Seen how display the Window List
- Seen how to use Alt+Tab and Alt+Esc
- Seen how to control where programs minimize to

Using the WarpCenter - 'Switch to Another Program'

If you have more than one program running at once you can click on the '**Switch to another program**' icon which will display a list of running programs. Click on the required program to switch to it.

Using the Windows List - Ctrl+Esc

To display a list of all programs that are running

- Press **Ctrl+Esc** to display the **Window List** (and then release the Ctrl+Esc keys).

NOTE: Only 'foreground' programs are displayed within the Window List. 'Background' programs are ones that are 'detached' from the screen and keyboard (for example an alarm program may have been detached and only pop-up into the foreground then the alarm goes off). Almost all the programs that you use will be foreground programs.

To switch to a program using the Window List

- Press **Ctrl+Esc** to display the **Window List** (and then release the Ctrl+Esc keys).
- Double click on the program that you wish to switch to.

To close multiple programs

- Press **Ctrl+Esc** to display the **Window List** (and then release the Ctrl+Esc keys).
- Click on the first program that you wish to close.
- Depress the **Ctrl** (and keep it depressed).
- Click on the programs that you wish close.
- Release the **Ctrl** key.
- Right click with the mouse to display the pop-up menu.
- Click on the **Close** command.

Alt+Tab and Alt+Esc

You can use these key combination to cycle round programs that are running. You will find that if you are running Microsoft Windows programs, that these too are accessible.

Alt+Tab Switching

Alt+Tab switching means that you depress the **Alt** key and while keeping it depressed, repeatedly press and release the **Tab** key. As you do this the name of all programs that are running will be displayed in a small box displayed on your screen. When you release the **Alt** key you will switch to that program

Alt+Esc Switching

Alt+Esc switching means that you depress the **Alt** key and while keeping it depressed, repeatedly press and release the **Esc** key. As you do this you will cycle round all the programs that are currently open on your system.

Where Do Programs Minimize To?

If you are used to running Microsoft Window 3.1/Windows 3.11 then you will be used to the fact that all icons will minimize to the Windows Desktop.

If you are used to Microsoft Windows 95, then you will be used to seeing all minimized programs appearing on the status bar normally displayed along the bottom of the Windows 95 screen.

But what about OS/2? In some cases programs will minimize to the Desktop. In other cases program will seem to disappear when you minimize them (i.e. they will not appear on the Desktop as an icon, but you can see them in the Window List).

If you minimize a program and it is not displayed on the Desktop, then it has probably been minimized to a special folder that displays icons of minimized programs.

Where is the 'Minimized Window Viewer'

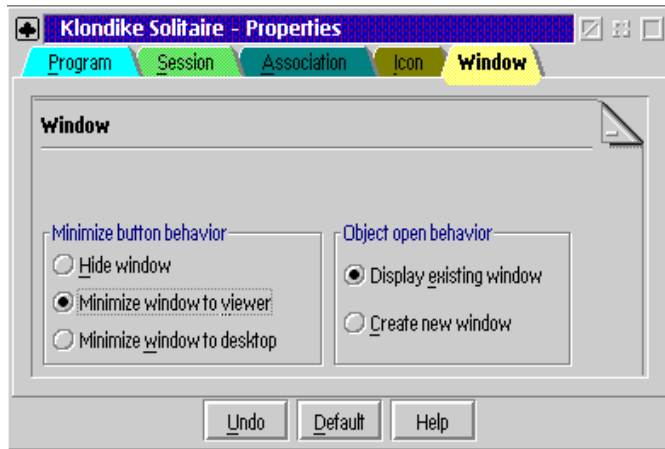
- Double click on the **OS/2 System** icon.
- Double click on the **Minimized Window Viewer** icon
- All minimized program will be displayed with a folder. To switch to any program, listed within the windows, simply double click on it.

How to control where a program will minimize to

- This is controlled via the properties on a program icon. For instance, to change where Klondike Solitaire will minimize to, first display the icon.



- Right click on the icon to display the icons pop-up menu.
- Click on the **Properties** command.
- Display the **Window** tab (note that there may be more than one Window tab).



You should see an area within the dialog called **Minimize button behavior** which contains three choices:

Hide window

When a program is minimized it will not be displayed on the Desktop or the **Minimized Window Viewer**. You can switch back to the program via the **Window List**, or by using the **Alt+Tab** keys.

Minimize window to viewer

When a program is minimized it will only be displayed in the **Minimized Window Viewer**.

Minimize window to desktop

When a program is minimized it, it will minimize to the Desktop.

Review Questions

- How would you display the Window List?
- How would you use the Window List to close two programs at the same time?
- What is the difference between Alt+Tab and Alt+Esc?
- How would you use the Task List to tile two windows side-by-side?

The Assistance Center and Getting Help!

When you have completed this learning module you will have:

- Seen the contents of the OS/2 Assistance folder
- Seen how to use the OS/2 Tutorial
- Seen how to use the Glossary
- Seen how to use the OS/2 Command Reference
- Seen how to get help about printing under OS/2
- Seen how to get help at the OS/2 command line and how to get extended help on OS/2 error messages
- Seen how to use the F1 key to obtain context-sensitive help

What is the Assistance Center Folder?

The Assistance Center folder contains a range of objects that will help you use your OS/2 system including:

- Information
- Trouble shooting
- Information from the Internet
- The OS/2 Warp Tutorial

The Information Object

The OS/2 Tutorial provides you with an excellent introduction about how to use your OS/2 system.

There are a range of topics including:

- OS/2 Basics
- Applications
- Objects
- Customization
- Help Issues
- Multimedia and Games
- Index

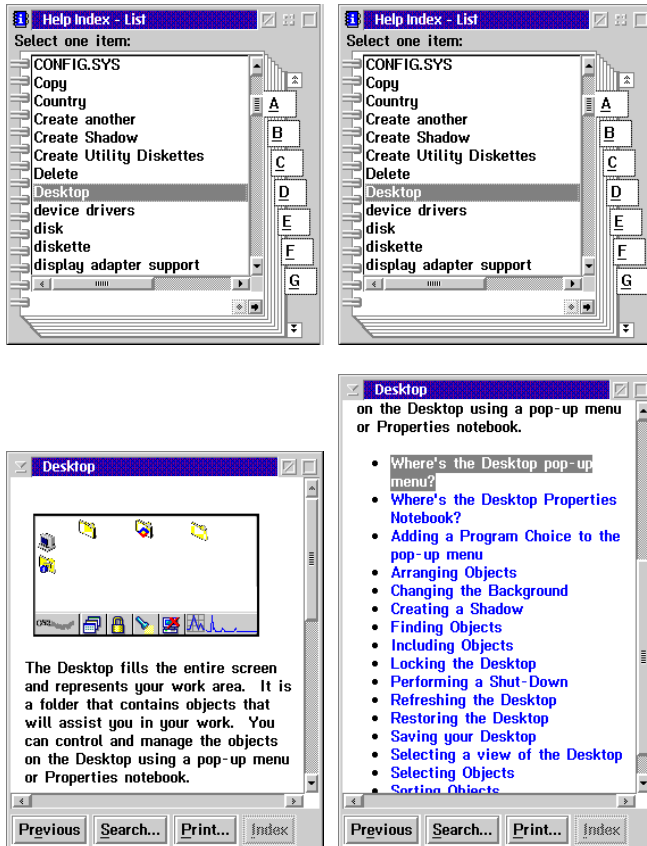
What's Contained Within the Information Object?

Clicking on the **Information Object** will display a window which contains the following:

- Help Index
- Tasks
- Reference Commands
- Read Me
- Online Information Overview

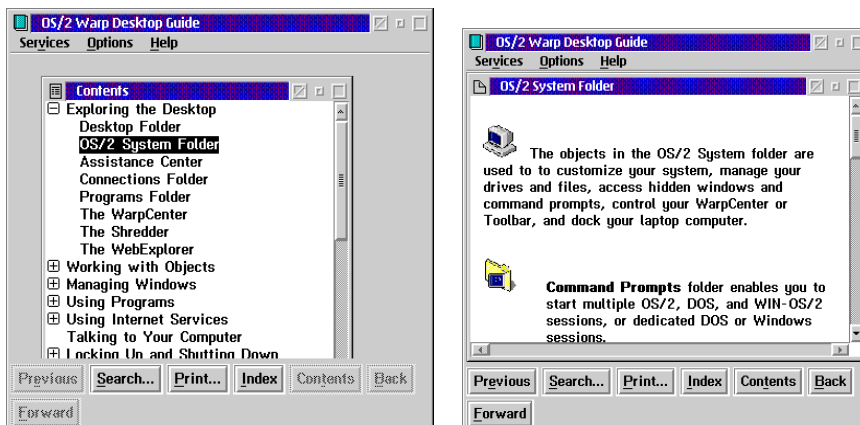
Help Index - What is it?

To get help on the Desktop, scroll down, until you see the word Desktop, then double click on the required word(s). An explanation of the topic selected will be displayed in the right-hand window as illustrated.

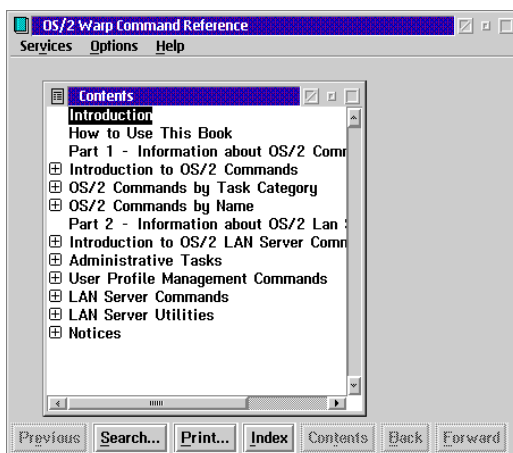
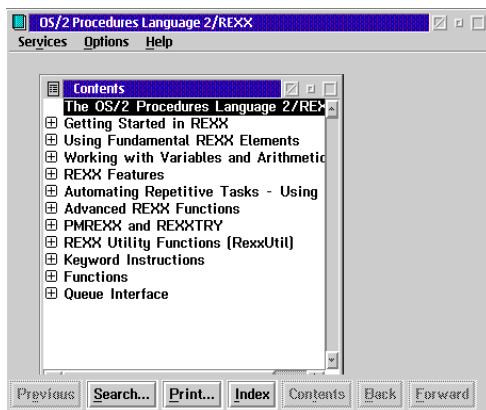
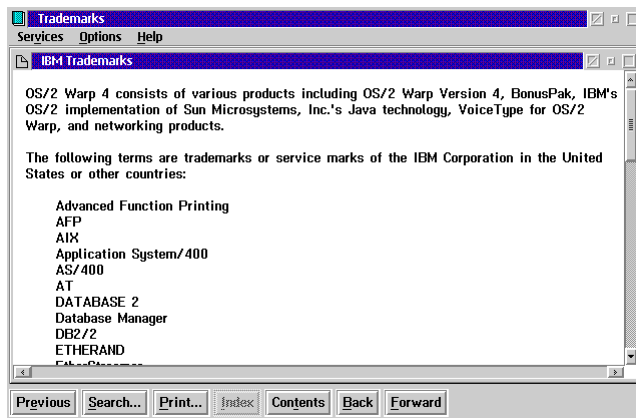


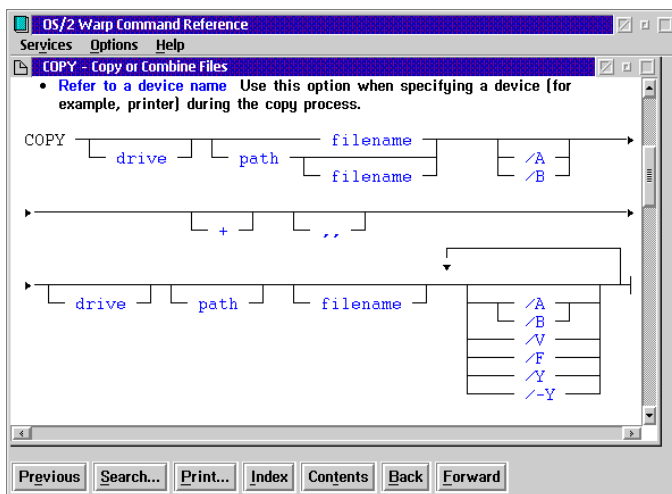
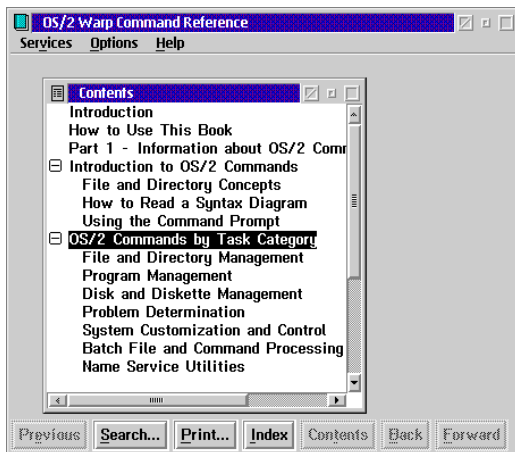
Information Folder - Tasks - OS/2 Warp Desktop Guide

A way of exploring your system and getting specific help on tasks.



Information Folder - Reference and Commands

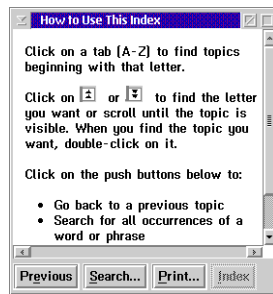
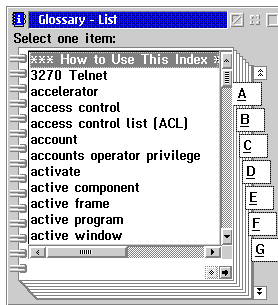
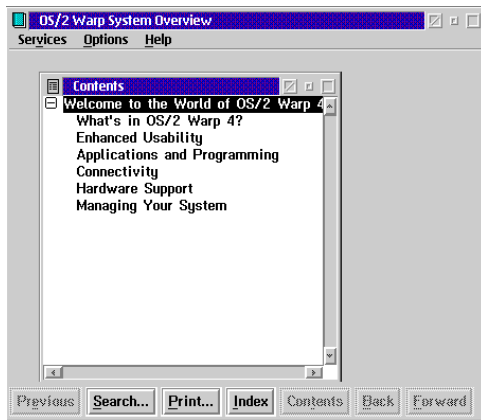




Read Me

The README file supplied with OS/2 provides information that may have been made available after the on-line Help system was written or after the printed material was published.

Information Folder - Online Information Overview



Using the WarpCenter Help Icon

A more convenient way of retrieving on-line Help.

Trouble Shooting - Help

Help for resolving system problems.

Information from the Internet

The big advantage of the Internet as an information source is that it can be updated instantly. For example if you need to obtain a new driver for your system, the Internet is an excellent source.

OS/2 Tutorial

This is an excellent introduction to the basic use of the system.
You can repeat some or all of the tutorial as often as you like and at your own speed.
It is a good idea to make sure that you work through the entire tutorial so that you know what is available from your OS/2 system.

Help at the Command Line and OS/2 Error Messages

When you enter the command **HELP** and press **Return** at the command line, a screen listing command keyboard combinations will be displayed.

Example of an OS/2 error message caused by trying to format a diskette, when there is no diskette in the drive:

SYS0039: The * device is not ready.**

EXPLANATION: One of the following has occurred:

- The device is not ready or is empty.
- The device driver for COMn is not installed or COMn was shut down and further use of it is disabled.

ACTION: Do one of the following and retry the command:

- Insert a diskette in the drive and close the drive door or wait until the drive is available.
- Check the CONFIG.SYS file for the DEVICE=COM.SYS statement.
- Shut down the system. During restart, note and refer to any messages regarding COMn.
- Issue MODE COMn from a command prompt to see if COMn exists.
- Be sure there is hardware for COMn.

Context-Sensitive Help - Remember the F1 key!

In most case OS/2 will display 'context-sensitive Help'. This means that the Help will reflect the activity you are working on.

Review Questions

- What is the easiest way to obtain context-sensitive Help within OS/2?
- How would you open the OS/2 Tutorial program?
- What is the function of the Master Help Index?
- What is the function of the Glossary?
- What is the function of the Command Reference?

OS/2 System Setup

When you have completed this learning module you will have:

- Seen what is contained within the OS/2 System Setup folder
- Seen how to change the colors and fonts used by the system
- Seen how to customize the system clock
- Seen how to customize Country specific information

What is the OS/2 System Folder?

The system folder contains objects for accessing and customizing the way OS/2 works with your PC. Objects contained within the OS/2 System Folder include:

- System Setup
- Command prompts
- Minimized Window Viewer
- Startup
- Templates
- Drives
- Toolbar
- WarpCenter

The OS/2 System Folder - System Setup

The System Setup object contains the following items:

- Scheme Palette
- Solid Color Palette
- Mixed Color Palette
- Font Palette
- Create Utility Diskettes
- Win-OS/2 Setup
- Power
- Sound
- Add Programs
- Spooler
- Country
- System
- Mouse
- Keyboard
- System Clock
- Plug and Play for PCMCIA
- Install / Remove
- Hardware Manager

To access the System options via the WarpCenter

- Click on the **System Setup** icon with the WarpCenter toolbar. A list of all available options will be displayed.

To access the System options from the Desktop

- Click on the **OS/2 System** folder object.

System Setup - The System Clock

Used to display the system time and date. You can choose an analog or digital display and can display either the time or both the time and date. The clock program can also be set as an alarm clock.

NOTE: Your computer contains a special chip which is connected to a small battery. The fact that this chip is powered by a battery allows it to retain the time and date even when your PC is switched off. However, it is up to you to ensure that the correct time and date are displayed. If these values are incorrect, you may modify the setting, as described below.

To set the time and date on the system clock

- Double click on the **OS/2 System** window.
- Double click on the **System Setup** object.
- Click once on the **System Clock** object to select it.
- Click once using the right-hand mouse, to display the pop-up menu.
- Click on the **Settings** command, which displays the **Clock Notebook**.
- Click on the **Date/Time** tab and change the **Date** and **Time** as required.

To change the way the clock is displayed

- Follow the instructions as above, but select the **View** tab and change settings as required.

To set an alarm using the system clock

- Follow the instructions as above, but select the **Alarm** tab and change settings as required.

System Setup - Keyboard and Mouse

The way your mouse and keyboard react with OS/2 can be customized to best suit the way you work. For example, if you are left-handed, you may wish to swap over the functionality of the two mouse buttons. If you are new to using a mouse, you may wish to increase the time taken for the system to recognize a double-click on the mouse button.

To change keyboard or mouse settings

- Double click on the **OS/2 System** object.
- Double click on the **System Setup** object.
- As required, double click on the **Mouse** or **Keyboard** object to open the relevant **Notepad** controls and change the required item.

System Setup - Country

You may use this object to set country specific information for items such as:

- The unit of measurement
- The way time and date information is displayed
- The currency symbol

System Setup - Font Palette

To change the font used to display text

- Double click on the **OS/2 System** object.
- Double click on the **System Setup** object.
- Double click on the **Font** pallet.
- Select the font you wish to apply to your text.
- Depress the right-hand mouse button (and keep it depressed).
- Drag the selected sample font to the text that you wish to apply the new font to.
- Release the right-hand mouse button.

System Setup - Color Palette and the Scheme Palette

To change the color scheme of your system

- Double click on the **OS/2 System** object and double click on the **System Setup** object.
- Double click on the **Scheme Pallet** and click once on the required color scheme.
- Depress the right-hand mouse button (and keep it depressed).
- Drag the selected color scheme to the **Desktop**. Release the right-hand mouse button.

To change the colors available on the Scheme Pallet

- Open the **Scheme Pallet**, as outlined above and then click once on the color scheme you wish to modify. Click on the **Edit Scheme** button, which displays the **Edit Scheme** dialog box.
- Click on the **Edit Color** button, which displays the **Edit Color** dialog box.
- To set the new color, click on the required color within the color globe displayed. You may also drag across this globe to get just the right color!
- Double click on the **Title Bar** icon to close the color editing dialog box and confirm the color.
- Double click on the **Title Bar** icon to close the **Edit Scheme** dialog box.

Review Questions

- How would you change the way the system clock is displayed?
- How would you change the color options used by OS/2?
- How could you change the font used by a particular window within OS/2?
- How would you change the properties of the mouse?
- How would you change Country specific information?

Command Prompts

When you have completed this learning module you will have:

- Understood the concept of a command prompt
- Seen how to open the various types of command prompt that are available within OS/2
- Seen how to obtain Help within a command prompt
- Seen how to close a command line prompt

The OS/2 System Folder - Command Prompts

What is a command prompt?

Users of DOS are used to the concept of a command line. It is where you type in the commands that the operating system understands. Originally DOS only worked via a command line, but even later versions of DOS have an optional 'pretend' graphical interface, called the DOS Shell supplied with it. OS/2 is normally operated using the OS/2 graphical user interface, which we call the WorkPlace Shell. However, if you really like the concept of a command line you can still enter your instructions in this way within OS/2.

OS/2 has different types of command line:

- OS/2 command line, running in a window
- OS/2 command line, running full screen
- DOS command line, running in a window
- DOS command line, running full screen

The main advantage of using the command line is that for experienced command line users, it often produces a particular end result faster than using the GUI. Additionally, there are some advanced functions that can only be performed from the command line.

To start a command line session

- Double click on the **OS/2 System** icon, which opens the **OS/2 System** folder.
- Double click on the **Command Prompts** icon, which opens the **Command Prompts** folder.
- Double click on the required type of command prompt, either:
 - OS/2 Windows
 - OS/2 Full Screen
 - DOS Full Screen
 - DOS Window

To exit a command line session

- Type in the command **EXIT**, and press the **Return (Enter)** key. **NOTE:** If the command session is windowed you can use the mouse to close the session by clicking on the **System (Control Icon)**, and selecting the **Close** command.

To use command retrieval

- Simply use the **Up Arrow** cursor key to display previously entered commands.

To use command retrieval within a DOS command line session

- No command retrieval is available until you enter the command **DOSKEY**. After this, simply use the **Up Arrow** cursor key to display previously entered commands.

To display general help at the command line

- Enter the command **Help** and press the **Return** key.
- This will display the following:

Alt+Esc to switch to the next session.

Ctrl+Esc to switch to the Window List.

Select Master Help Index for help about OS/2 procedures and tasks.

Type HELP message-number for message help.

Type HELP [BOOK] SUBJECT to receive on-line information.

Type HELP ON for help text.

Type HELP OFF for no help text.

Type EXIT to end this OS/2 session.

To display help on specific commands

- Enter the command **Help** followed by the command you want detailed **Help** on.
- For instance, to obtain **Help** on the **Format** command, you would type:

HELP FORMAT

and then press the **Return** key.

To display a summary of available switches

- Only use this for 'Internal Commands' such as **DIR**, **CLS**, **TIME**, **DATE** etc.
- Enter the command followed by **/?**. For instance, to see the switches available on the **DIR** command you would type:

DIR /?

and then press the **Return** key.

Windows and OS/2

You can continue to run your Windows 3.x programs within OS/2, most of which will run without problems. Do not attempt to install programs designed for Microsoft Windows 95 or Windows NT as these are not supported within OS/2.

Review Questions

- What is a command line prompt?
- How could obtain Help within a command prompt?
- How would you close a command line prompt?

Applications, Utilities and Games

When you have completed this learning module you will have:

- Seen some of the utilities available within OS/2
- Seen the OS/2 games
- Seen how to start an application automatically

The OS/2 Programs Folder

Any applications that have been installed on your PC should be contained within this window, both Windows and OS/2 programs.

Starting Programs Automatically

The **Startup** folder has one special property. Any object that is copied to the StartUp folder will start automatically, at the same time that you start OS/2.

To copy an object to the StartUp folder

- Use the normal drag and drop techniques to copy any object to the **StartUp** folder. It is safer to copy rather than move objects to the **StartUp** folder.

NOTE: The **StartUp** folder is located within the OS/2 System folder.

To revert programs from starting automatically

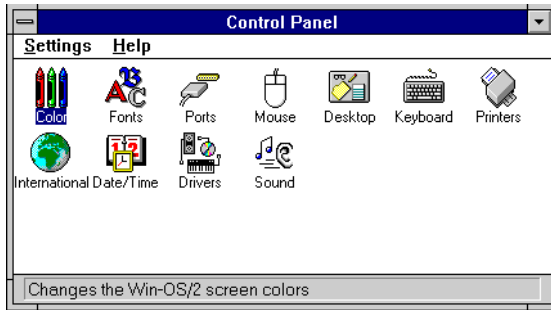
- Any programs that were running when you last shutdown OS/2, or any programs located within the **StartUp** folder will normally start automatically when you re-start OS/2. To prevent any of these programs starting automatically:-
- Restart the computer, by pressing **Ctrl+Alt+Del**.
- When the **Desktop** animation starts (i.e. the exploding box!), depress the **Ctrl+Shift+F1** keys (and keep them depressed).
- Keep the keys depressed until the **Desktop** is displayed, and then release the keys.

The OS/2 Utilities Folder

Control Panel

(WIN-OS/2)

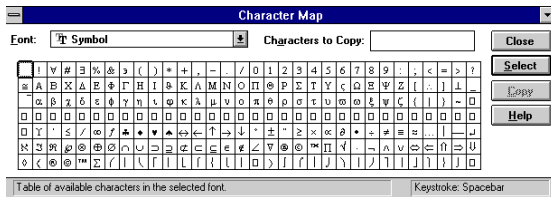
Allows you to configure your WIN-OS/2 system:



Character Map

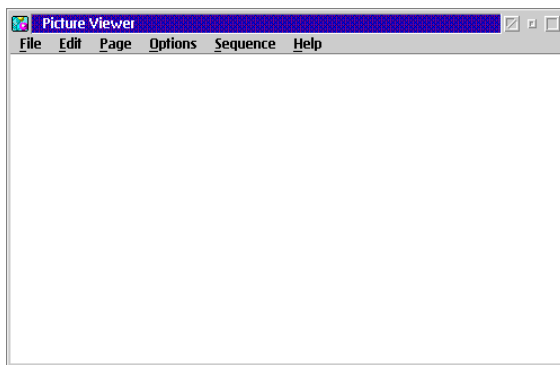
(WIN-OS/2)

Allows you to insert non-standard characters within your WIN-OS/2 system:



Picture Viewer

Allows you to view graphic (i.e. picture) files within OS/2:

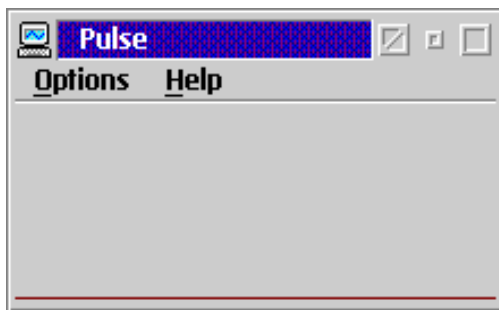


Clipboard Viewer

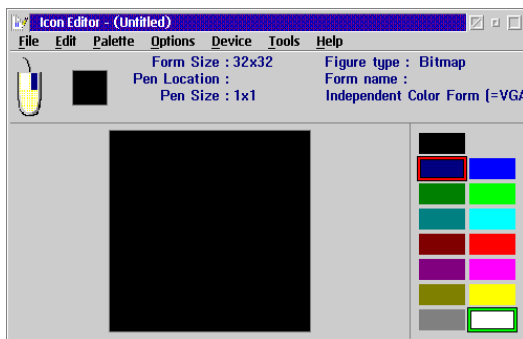
Allows you to view the contents of the OS/2 Clipboard:

**Pulse**

Allows you to view the rate of Central Processing Unit (CPU) activity:

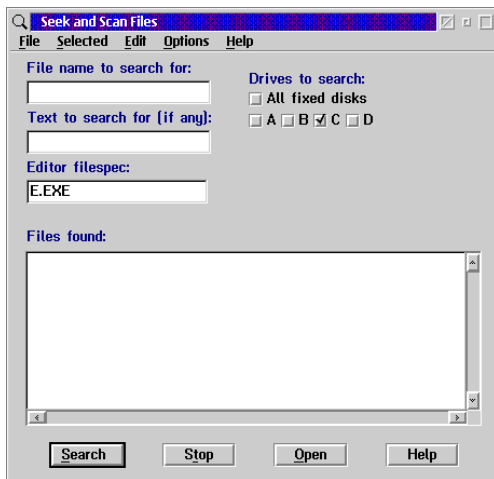
**Icon Editor**

Allows you to edit existing icons or create new ones:



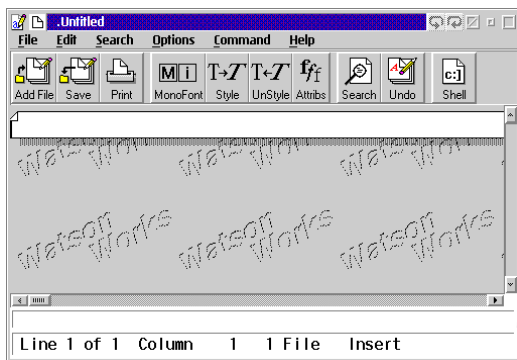
Scan and Seek Files

Allows you to find a particular file on disk, or a particular piece of text contained within a file:



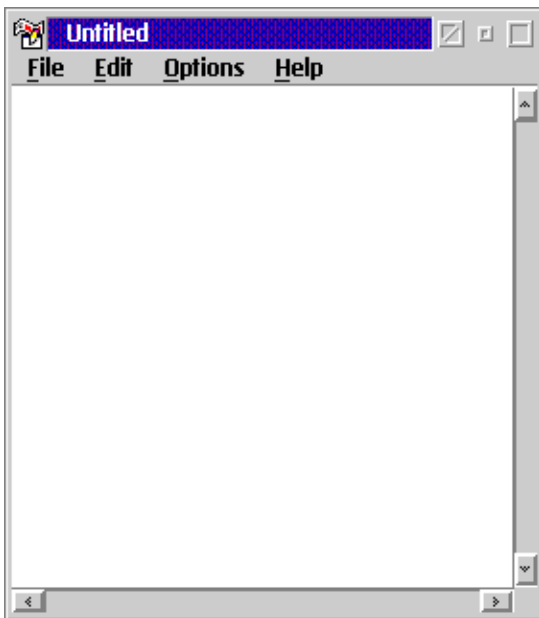
Enhanced Editor

An extension of the text-only system editor:

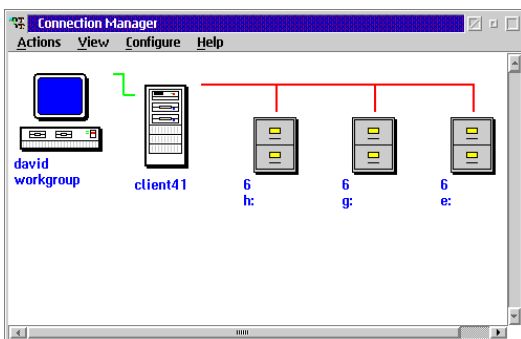


OS/2 System Editor

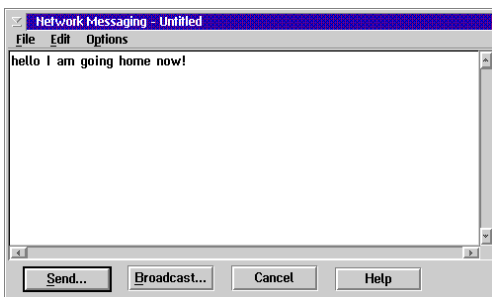
Allows you to edit text-based system files:

**CONMAN**

Allows you to view and maintain your network environment:

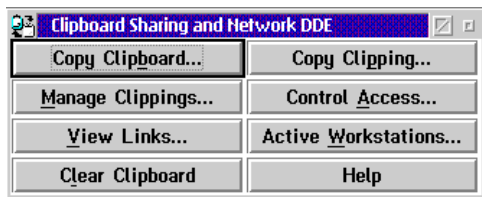
**Network Messaging**

Used to send or broadcast messages:



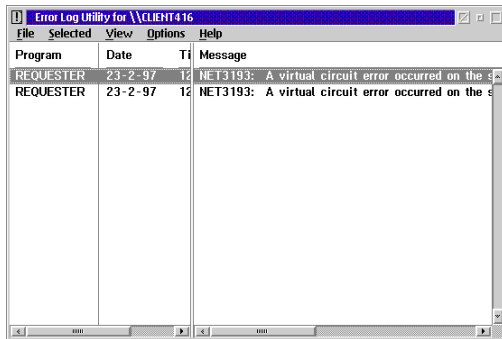
Network DDE and Clipboard

Allows you to use DDE (Dynamic Data Exchange) over your network:



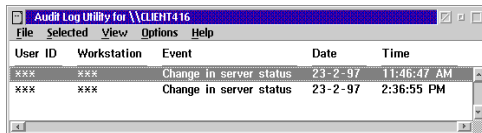
Error Log

Allows you to view a log or any system errors:



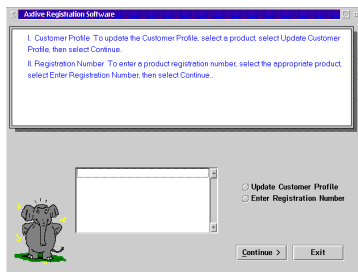
Audit Log

Allows you to view the audit log:



Software Registration

Allows you to register your copy of OS/2:



The OS/2 Games Folder

The Games folder is a bit of fun as well providing an excellent way of improving your mouse manipulation skills - honest!

The OS/2 System Folder - Minimized Window Viewer

In OS/2 when you minimize an object one of the places it can be 'minimized to' is the Minimized Window viewer.

NOTE: If you are used to using MS Windows 3.1 then this will seem a little strange at first, because in Windows 3.1 all items minimize automatically to the Desktop. In OS/2 it is up to you to decide where you wish particular objects to be minimized to. Normally either the Desktop or to the Minimized Windows Viewer.

To view the contents of the Minimized Window Viewer

- Double click on the OS/2 System icon to display the OS/2 System window.
- Double click on the **Minimized Window Viewer** to display it's contents.

Review Questions

- Where is the Games folder located?
- Names some of the OS/2 utilities located within the Utilities folder.
- How would you start an application automatically when you start OS/2?

Drive, Folder and File Manipulation

When you have completed this learning module you will have:

- Understood how to manipulate files, drives and folders within OS/2
- Seen how to format diskettes
- Seen how to transfer data between hard disks and diskettes

The OS/2 System Folder - Drives

To display the Drive objects

- Double click on the **OS/2 System** icon and then double click on the **Drives** icon, This displays a window containing a separate icon to represent each of the drives that you have access to.
- Double click on the required drive icon which will display a tree view of the directories contained within the drive. To see the individual file objects within a directory object, double click on the required directory object
- Or click on the **Drives** icon within the WarpCenter.

Types of drive objects

- The icon displayed represents a particular type of drive, as illustrated:



Drive A: Diskette



Drive C: Local hard disk



Drive D: Local CD-ROM



Drive H: Network drive

Selecting objects within the drive

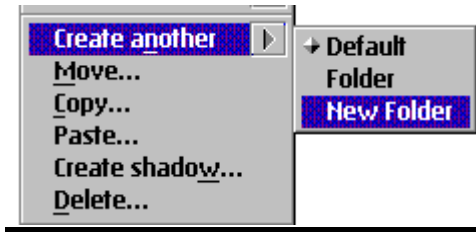
- To select a single file or folder, click on it with the right-hand mouse button.
- To select all objects press **Ctrl+/**

To delete objects from a drive

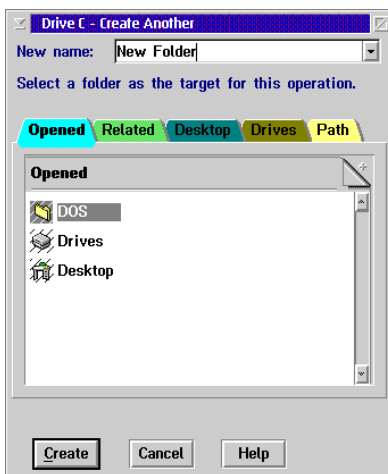
- Open the **Drive** object window within the **Drives** icon.
- Select the object you wish to delete.
- Depress the right-hand mouse button (and keep it depressed).
- Drag the selected object to the shredder.
- Release the right-hand mouse button.

To create a new folder

- Open the folder window that you wish to create a new folder under.
- Right-click to display the pop-up window.



- Select the **New Folder** option.



- Enter the folder name required and click on the **Create** button.

Diskette Manipulation Under OS/2

To format a diskette

- Within the **Drive** object window, select the drive you wish to format.

WARNING: ONLY SELECT EITHER DRIVE A: OR DRIVE B: IF YOU TRY TO FORMAT DRIVE C: YOU WILL FORMAT YOUR HARD DISK!

- Click once using the right-hand mouse, to reveal the **Drive** pop-up menu.
- Select the **Format Disk** command from the pop-up menu, and click on the **Format** button within the dialog box displayed.

To check a diskette for errors

Diskettes are notoriously unreliable, especially when the data you are transferring to them is really important! It is therefore a good idea to check the integrity of a disk, prior to copying information to it.

- Select the drive you wish to test from the B window.
- Click once using the right-hand mouse button, to display the drive pop-up menu.
- Click on the **Check Disk** command.
- A dialog box will be displayed asking if you wish to write corrections to disk. Click on this check box to enable writing of corrections to the disk.
- Click on the **Check** button.
- Click on **Cancel** to remove the dialog box, once the disk has been checked.

The OS/2 System Folder - Shredder

To access the shredder via the OS/2 System object

- Double click on the OS/2 System icon. Double click on the **Shredder** icon.

To access the Shredder via the LaunchPad

- Simply click on the **Shredder** icon within the **LaunchPad**.

To delete an object

- Click on the object you wish to delete in order to select it.
- Depress the right-hand mouse button (and keep it depressed).
- Drag the object to the **Shredder** icon.
- Release the right-hand mouse button.
- If a message is displayed within a dialog box, click on the **Delete** button.

NOTE: The shredder can be customized to delete without confirmations. It is dangerous to set up the shredder to delete without first asking you if you are sure you want to complete the action!

Review Questions

- What is the system shredder?
- How would you create a new folder on a drive?
- How would you access data held on a networked drive?
- How would you format a diskette?

Exchanging Data

When you have completed this learning module you will have:

- Understood the concepts behind the use of the OS/2 Clipboard
- Seen how to use Cut, Copy and Paste
- Seen how to use the OS/2 Clipboard Viewer

The Clipboard

The **Clipboard** is an area of memory where OS/2 can store things. You can store text or graphics (i.e. pictures) on the **Clipboard**.

Once an item has been copied or moved (when you move a file this is sometimes referred to as a cut) to the **Clipboard** it can be pasted from the **Clipboard** to somewhere else.

The item is copied from the **Clipboard** which means that it stays on the **Clipboard**, until replaced by something else.

The **Clipboard** is an excellent way of transferring data from one application to another.

Using the Cut, Copy and Paste Commands

Most applications have an item called Edit in their menu bars. Located on the **Edit** drop down menu you will normally find the **Cut**, **Copy** and **Paste** commands.

When you copy an item to the **Clipboard**, a copy of the information is placed on the **Clipboard**. When you cut an item to the **Clipboard**, you move the selected item to the **Clipboard**.

To cut an item to the Clipboard

- Select the item you wish to cut to the **Clipboard**.
- From the **Edit** drop down menu, select the **Cut** command.

To copy an item to the Clipboard

- Select the item you wish to copy to the **Clipboard**.
- From the **Edit** drop down menu, select the **Copy** command.

To paste an item from the Clipboard

- Position the insertion point at the location where you want to paste the information from the **Clipboard**.
- From the **Edit** drop down menu, select the **Paste** command.

What is Dynamic Data Exchange (DDE)?

When using the normal **Paste** command no link is maintained between the original data and the new copy of the data.

When using **Dynamic Data Exchange** (DDE), a link is maintained between the original image of the data and the linked copy. When the original is edited then this editing is reflected in the copy of the data. This link is achieved via the **Paste Special** or **Paste Link** commands.

Review Questions

- What is the difference between the Cut and Copy commands?
- How many items of information can be stored on the Clipboard at one time?
- What is DDE short for?
- Can all OS/2 programs use DDE?
- What is the main advantage of use DDE compared to using the normal Paste command?